

## CLAIMS:

1. A method of data-processing to form a compound object data set from a plurality of basis datasets
  - the basis datasets assigning datavalues to spatial positions in an at least three-dimensional space,
- 5 - the basis datasets being associated with mutually overlapping regions, the method comprising the step of
  - deriving compound datavalues for spatial positions in the overlapping regions from datavalues of respective basis datasets.
- 10 2. A method as claimed in Claim 1, wherein the compound datavalues are calculated by interpolation between datavalues of the basis datasets and for corresponding positions in the overlapping regions.
3. A method as claimed in Claim 2, wherein the calculation of compound  
15 datavalues involves a weighted interpolation.
4. A method as claimed in Claim 3, wherein
  - weights for datavalues of individual basis datasets are associated with their spatial positions in the respective spatial regions of said basis datasets and
- 20 - for respective basis datasets, the weights are non-decreasing with distance to an edge of the spatial region of the basis dataset concerned.
5. A method as claimed in Claim 4, wherein
  - the respective basis datasets have neighbouring spatial regions and
- 25 - said increasing of the weights with distance to an edge of the spatial region of the basis dataset concerned is dependent on the overlap between the neighbouring spatial regions

6. A method as claimed in Claim 5, wherein said increasing with distance to an edge of the spatial region of the basis dataset concerned is more strongly as there is less overlap between the adjacent spatial regions.

5 7. A method as claimed in Claim 1, wherein individual basis datasets are reconstructed from magnetic resonance signals.

8. A method as claimed in Claim 1, wherein the basis datasets include a  
10 datavalues that are encoded in three independent spatial directions of a multitude of two-  
dimensionally encoded datasubsets .

9. A method as claimed in Claim 9, wherein

- for individual basis data sets, sets of magnetic resonance signals are successively  
acquired for the respective positions in one spatial encoding direction or for the  
15 respective two-dimensional datasubsets and
- where the order of acquisition runs from the centre towards the edge of the spatial  
region of the basis dataset concerned.